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SEFCHECK, GREGORY B

ART UNIT	PAPER NUMBER
2662	

DATE MAILED: 01/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 October 2005*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12 and 14-18* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12 and 14-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

- Applicant's Amendment filed 10/28/2005 is acknowledged.

- Claims 10, 11, and 17 have been amended.

- Claims 13 and 19 have been cancelled.

- Claims 1-12 and 14-18 are pending.

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2.   Claims 1-5, 7, 8, 11, 12, 14, and 16-18 are rejected under 35 U.S.C. 102(e) as

being anticipated by Kao et al. (US006535513B1), hereafter Kao.

-    In regards to Claims 1, 4, and 7,

Kao discloses a line card circuit in a switching apparatus for performing multi-

service segmentation and reassembly between various networks (Title; Fig. 6; Col. 11-

12, lines 30-3; claim 1 – multi-service segmentation and reassembly integrated circuit).

Referring to Fig. 6 and lines 30-46 of column 11, Kao discloses a data path from

the first bus interface 616 (claim 1 – first bus interface) that receives data from various

networks and transfers it to multi-service engine 614 to perform lookup mapping and queuing in VC queues 612 (claim 1 – lookup circuitry) such that the data path can accommodate processing of both cell and packet traffic in both directions to/from a corresponding network or switch fabric (Col. 11-12, lines 54-3; claim 1 – cell and packet traffic pass over data path; claim 1 – lookup analyzes cell traffic to be processed in a first way; claim 1 – lookup analyzes packet traffic to be processed in a second way; claim 4 – ingress mode such that traffic output from IC to switch fabric via second interface; claim 4 – egress mode such that traffic received on IC from switch fabric via first interface).

Furthermore, Kao discloses SAR engine 610 for performing segmentation and reassembly of the data and manages the scheduling of data forwarding from/to the VC queues 612 to/from the second bus interface 602 that connects to a switch fabric (claim 1 – segmentation circuitry; claim 1 – reassembly circuitry; claim 1 – second bus interface; claim 1 – data path from first interface to lookup to segmentation to reassembly to second interface; claim 7 – IC comprises memory manager circuitry wherein the data path extends from segmentation to reassembly via the memory manager).

-    In regards to Claims 2, 3, and 5,

Kao discloses a line card in a switching apparatus for performing multi-service segmentation and reassembly between various networks that covers all limitations of the parent claim.

Kao discloses the switching apparatus is capable of receiving both packet and cell data on the first interface (Fig. 6; Abstract). Referring to Fig. 2, data is output from the second interface 602 is to a common switch fabric 208, and then to another line card 202 in which the data is output to an ATM network in a first mode or to an IP network in a second mode. Data can be exchanged/translated between ATM and IP networks through the respective line cards of the switching device (claim 2,5 – first ingress mode such that output is to a cell-based switch fabric via the second interface; claim 2,5 – second ingress mode such that output is to a packet-based switch fabric via the second interface; claim 3,5 – first egress mode such that traffic is received from a cell-based switch fabric via the first interface; claim 3,5 – second egress mode such that traffic is received from a packet-based switch fabric via the first interface).

-   In regards to Claim 8,

Kao discloses a line card in a switching apparatus for performing multi-service segmentation and reassembly between various networks that covers all limitations of the parent claim.

Kao discloses that the ATM and packet data is temporarily stored in VC queues 612 as it passes through the line card (Col. 11, lines 30-32 and 61-65; claim 8 – cell traffic is ATM, temporarily stored in one of plurality of equal size buffers; claim 8 – packet segmented into plurality of chunks and temporarily stored in buffers).

- In regards to Claim 11,

Kao discloses a line card circuit (MS-SAR) in a switching apparatus for performing multi-service segmentation and reassembly between various networks as shown above regarding claim 1.

Referring to Fig. 2, Kao shows a switching apparatus 102 containing multiple line cards connected from a switch fabric 206,208 (claim 11 – switching device comprising first and second MS-SAR and a switch fabric).

Kao shows that data flowing through the switching apparatus 102 can be ATM, IP, as well as conversions from ATM to IP and IP to ATM (Col. 2, lines 60-64; claim 11 – flow into the first MS-SAR is first type, flow out of second MS-SAR is second type; claim 11 – first and second types are any combination of ATM and packet data).

Kao shows that an ATM cell received on a line card 202 can be encapsulated into an IP packet transmitting out of another line card to an IP network (Col. 4, lines 13-30 - Table 1). This process of encapsulation would apply whether one or several ATM cells are received (claim 11 – only one ATM cell encapsulated in a packet output from the second MS-SAR when a single ATM cell is received on the first MS-SAR).

- In regards to Claim 12,

Kao discloses a line card circuit (MS-SAR) in a switching apparatus for performing multi-service segmentation and reassembly between various networks that covers all limitations of the parent claim.

Kao discloses that the SAR chip 422 of the line card is used for segmentation

and reassembly of AAL5 frames during interworking of IP and ATM traffic networks

(Col. 4, lines 65-67; claim 12 – ATM involves AAL5 adaptation layer cells).

- In regards to Claim 14,

Kao discloses a line card circuit (MS-SAR) in a switching apparatus for

performing multi-service segmentation and reassembly between various networks that

covers all limitations of the parent claim.

Similar to the encapsulation of a single ATM cell into a packet shown above in

claim 11, a received packet encapsulating an ATM cell received at a line card can be

de-encapsulated and transmitted as an ATM cell on another line card (Col. 4, lines 13-

30 – Table 1; claim 14 – de-capsulated ATM cell output from second MS-SAR when a

packet encapsulating a single ATM cell is received on first MS-SAR).

- In regards to Claim 16,

Kao discloses a line card circuit (MS-SAR) in a switching apparatus for

performing multi-service segmentation and reassembly between various networks that

covers all limitations of the parent claim.

Referring to Fig. 2, Kao shows that the switching device manages data

exchanges through an ATM cell-switching fabric 208 (claim 16 – switching device is OSI

layer 2 switch that does not perform IP routing)

-    In regards to Claims 17 and 18,

Kao discloses a line card circuit in a switching apparatus for performing multi-service segmentation and reassembly between various networks (Title; Fig. 6; Col. 11-12, lines 30-3; claim 17 – multi-service segmentation and reassembly integrated circuit).

Referring to Fig. 6 and lines 30-46 of column 11, Kao discloses a data path that can transmit/receive data from ATM and IP networks (claim 17 - first and second egress types).

Kao shows that the multi-service engine 614 may adapt flows and perform translation service functions based on header lookup (claim 17 – egress type indicated in the flow; claim 18 – indication in the switch header; claim 17 – locating information regarding where indication of application type is located in flow) such that the data path can accommodate processing of both cell and packet traffic (first and second egress types) in both directions to/from a corresponding network or switch fabric (Col. 11-12, lines 54-3; claim 17 – processing the flow in the data path according to the indicated egress type).

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 6 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Kao.

-    In regards to Claims 6 and 15,

Kao discloses a line card in a switching apparatus for performing multi-service

segmentation and reassembly between various networks that covers all limitations of

the parent claim.

Kao discloses the switching apparatus is capable of receiving both packet and

cell data on the first interface (Fig. 6; Abstract). Referring to Fig. 2, data can be

exchanged/translated between ATM and IP networks through the respective line cards

of the switching device (claim 6 – cell traffic is ATM).

Kao does not explicitly disclose packet traffic that is MPLS or the switching

device as a layer 3 IP router.

IP is known to be a layer 3 switching protocol, requiring implementation of

switching through a layer 3-type router device (claim 15 – switching device is OSI layer

3 IP router). MPLS is a well-known protocol for transporting packet data (claim 6 –

packet traffic is MPLS).

It would have been obvious to one of ordinary skill in the art at the time of the

invention to utilize the switching apparatus of Kao as a layer 3 IP router for interworking

of networks including MPLS packet traffic. This modification would provide compatibility

of the line card and switching apparatus with IP, MPLS and other layer 3 packet traffic

and enable interworking with the various other types of supported networks. This would

also enable the device to communicate with the pure routers of a single network.

5.   Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Kao in view of Takase et al. (US 20020101871A1), hereafter Takase.

       -   In regards to Claims 9 and 10,

Kao discloses a line card circuit in a switching apparatus for performing multi-

service segmentation and reassembly between various networks (Title; Fig. 6; Col. 11-

12, lines 30-3; claim 9 – integrated circuit).

       Referring to Fig. 6 and lines 30-46 of column 11, Kao discloses a data path from

first bus interface 616 (claim 9 – first bus interface) that receives data from various

networks and transfers it to multi-service engine 614 to perform lookup mapping and

queuing in VC queues 612 such that the data path can accommodate processing of

both cell and packet traffic in both directions to/from a corresponding network or switch

fabric (Col. 11-12, lines 54-3; claim 9 – cell and packet traffic pass over data path).

Furthermore, Kao discloses SAR engine 610 for performing segmentation and

reassembly of the data and manages the scheduling of data forwarding from/to the VC

queues 612 to/from the second bus interface 602 that connects to a switch fabric.

Kao does not explicitly disclose generating and checking a segmentation trailer

along the data path between the first and second bus interfaces.

Takase discloses a connectionless communication system. Takase shows a

system in which LAN (packet) data may be communicated in ATM cells through an

assembly/disassembly process (segmentation/reassembly; Abstract; Pg. 2, paragraph

32). This process of packet segmentation and reassembly to/from ATM cells includes

generating and affixing a segmentation trailer to the cells (Pg. 8, paragraph 168). Figs.

70A and B illustrate that this trailer is generated and affixed to a particular packet

segment and checked for missing segments, length of segments, etc. for the

corresponding packet (Pg. 17, paragraph 289; claim 9 – generating segmentation

trailer; claim 9 – checking segmentation trailer; claim 10 – ingress mode for segmenting

a packet into a plurality of segments, generating trailer, appending trailer to one of

segments, output in the form of switch cells; claim 10 – egress mode for outputting

packet onto a network, checking plurality of received segments, a last one including

trailer, checking the trailer).

It would have been obvious to one of ordinary skill in the art at the time of the

invention to modify the switching apparatus of Kao by generating and checking a

segmentation trailer for packets converted in cells, as shown by Takase. The

information in this trailer could then be used to check for missing segments and the

length of segments for a corresponding packet to ensure proper transmission through

the interworking of networks.

Response to Arguments

6.   Applicant's arguments filed 10/28/2005 have been fully considered but they are

not persuasive.

- In the Remarks on pg. 7 of the Amendment, Applicant contends that no

  specific details of a data path, internal components or interconnections

  between the components of Fig. 6 have been disclosed by Kao.

- The Examiner respectfully disagrees. The previous Office Action filed

  6/28/2005 references Kao's Fig. 6 and corresponding columns and lines.

  Fig. 6 in Kao clearly shows how the cited components are interconnected,

  thus illustrating a data path as claimed.

- In the Remarks on pg. 7-8 of the Amendment, Applicant contends that the

  lookup circuitry disclosed by Kao does not disclose analyzing cell-protocol

  traffic and outputting information that causes cell-protocol traffic to be

  processed in a first way by SAR circuitry.

- The Examiner respectfully disagrees. Kao shows that adapting data

  flows, packet translation, etc. by the multi-service engine 614 includes

performing service functions based on header lookup for each of the

possible received data types, including ATM (cell-protocol) and IP (packet-

protocol) data. It is inherent that the lookup function would cause

processing of the data by the coupled SAR module based on the results of

the lookup operation.

- In the Remarks on pg. 8 of the Amendment, Applicant contends that Kao

  does not disclose the use of a packet-based switch fabric.

- The Examiner respectfully disagrees. Kao discloses the interworking of

  data including IP packets, which are communicated via a packet-based

  switch fabric.

- In the Remarks on pg. 8 of the Amendment, Applicant contends that Kao

  does not disclose memory manager circuitry defined in claim 7.

- The Examiner respectfully disagrees. Kao discloses the cited components

  on a service card implemented through software ICs that inherently

  comprise the execution of instructions from a memory.

- In the Remarks on pg. 9 of the Amendment, Applicant contends that Kao

  does not disclose the packet encapsulation of a single ATM cell.

  Applicant contends that packets typically encapsulate multiple ATM cells.

- The Examiner respectfully disagrees. The switching apparatus/line card of Kao would function as disclosed for one or more received ATM cells. While utilizing a packet for encapsulating multiple ATM cells is most efficient, it requires multiple ATM cells to be received for encapsulation. Receipt of a single ATM cell would result in the encapsulation of that single cell.

- In the Remarks on pg. 10 of the Amendment, Applicant contends that amended claim 17 describes a specific lookup procedure that is not met by the lookup disclosure of Kao.

- The Examiner respectfully disagrees. The lookup procedure of amended claim 17 describes a general lookup procedure in the switching apparatus/line card of Kao, because Kao utilizes a lookup prodecure for performing service (application) functions on a multi-port device for packet translation/adapting flows/mapping operations.

- In the Remarks on pg. 11-12 of the Amendment, Applicant contends that the combination of Kao and Takase is improper and that no proper motivation to combine is provided.

- The Examiner respectfully disagrees. Both Kao and Takase pertain to interworking packet and ATM data and tracking that interworking through a segmentation/reassembly process. Takase provides the motivation to

combine with Kao because the utilization/checking of a segmentation

trailer during the interworking process would help ensure proper

transmission and minimize errors in Kao.

Conclusion

7.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Gregory B. Sefcheck whose telephone number is 571-

272-3098. The examiner can normally be reached on Monday-Friday, 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Hassan Kizou can be reached on 571-272-3088. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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GBS
1-3-2006

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